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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,130	10/31/2003	Lauren A. Groth	130290-01	2699

35684 7590 08/31/2006

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EXAMINER	
DANIELS, MATTHEW J	
ART UNIT	**PAPER NUMBER**
1732	

DATE MAILED: 08/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

TK

Office Action Summary	Application No.	Applicant(s)	
	10/699,130	GROTH, LAUREN A.	
	Examiner	Art Unit	
	Matthew J. Daniels	1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 June 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 13-20* is/are rejected.

7)☒ Claim(s) *11 and 12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's confirmation of the election of Claims 1-20 in the reply filed on 22 June 2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Objections

2. Claim 1 is objected to because of the following informalities: Line 16 recites "a recesses", but the "a" is believed to be a typographical error. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-5, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Palmer (USPN 4,701,999) in view of Plummer (USPN 4480975).

The cited reference to Palmer substantially teaches the basic claimed method of protecting an electrical assembly comprising providing pre-molded forms, and securing the assembly between the forms to protect from damage caused by the environment. The detailed

method steps include providing an integrated circuit chip attached to a lead frame, wherein the device may be preassembled prior to molding (see col. 5, lines 20-25), and providing a solid bottom wall insert 48 and a solid top wall cap 50. Both the bottom wall insert 48 and top wall cap 50 may be preformed prior to assembly by any conventional molding technique, including injection molding. The method is carried out by associating each insert and cap with the electrical assembly, and forming a sealed housing around the assembly. Palmer provides recesses that are complementarily shaped to individual electrical components (Fig. 9).

The method may further comprise the molding of a plastic rim for securely locating the cap and insert onto the assembly. See col. 6, lines 45-60; col. 7, lines 12-30, 34-65; col. 10, lines 5-25.

The cited reference does not set forth a printed circuit board as claimed, and does not teach the multiplicity of components contained in the new limitation "individual components" or "recesses".

Note that the lead frame set forth in the applied prior art reference is an alternative equivalent form of a board, as both are substrates for receiving the electrical components (or chips), and it would have been obvious to one of ordinary skill in the art at the time the invention was made to use printed circuit boards for making a similar assembly.

As to the multiplicity of components, manufacturing of a multiplicity simultaneously is conventional. Plummer provides teaching that it is known to simultaneously form encapsulated components. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Plummer into that of Palmer in order to increase manufacturing efficiency by simultaneously forming multiple components.

With respect to claims 2-3, note that both insert 48 and cap 50 are injection molded by any conventional technique, and may include a molded rim formed of a material different from the insert material.

With respect to claim 4, note that the inserts include recesses 50b; see col. 7, line 30.

With respect to claim 5, the use if hinges is conventional in the molding ad, and would have been obvious to one of ordinary skill in the art at the time the invention was made for making an assembly with one pad moving relative to another.

With respect to claim 8, note that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior ad structure is capable of performing the intended use, then it meets the claim.

No further structure is given in this claim to further limit the structure set forth in claim 1, thus the reference remains as previously applied.

4. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Palmer (USPN 4,701,999) in view of Plummer (USPN 4480975), and further in view of Harding (USPN 4,829,403).

The cited primary reference substantially teaches the basic claimed method of protecting an electrical assembly comprising providing pre-molded forms, and securing the assembly between the forms to protect from damage caused by the environment. The detailed method steps include providing an integrated circuit chip attached to a lead frame, wherein the device may be preassembled prior to molding (see col. 5, lines 20-25), and providing a solid bottom

wall insert 48 and a solid top wall cap 50. Both the bottom wall insert 48 and top wall cap 50 may be preformed prior to assembly by any conventional molding technique, including injection molding. The method is carried out by associating each insert and cap with the electrical assembly, and forming a sealed housing around the assembly. The method may further comprise the molding of a plastic rim for securely locating the cap and insert onto the assembly. See col. 6, lines 45-60; col. 7, lines 12-30, 34-65., col. 10, lines 5-25.

The cited primary reference does not set forth a printed circuit board as claimed, or an embedded structure within the molded forms.

The added secondary reference teaches as conventional a similar electrical package, wherein the molded caps include an embedded thermal conductor 20, 30. The conductors may be coated and over-molded with a plastic material, and then sealed together to form a covered electrical assembly. See col. 4, lines 5-50; col. 5, lines 40-68.

It would have been obvious to one of ordinary skill in the ad at the time the invention was made to include an embedded structure as shown in the added reference, when performing the process set forth in the primary reference, for molding a cap with a thermal conductor.

5. Claims 9, 10, 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hogan et al (USPN 5,543,103) in view of Plummer (USPN 4480975).

The cited reference substantially teaches the basic claimed method of accurately shaping the surface of a mold with a three-dimensional image as claimed. The detailed method steps include electronically scanning the object to be replicated, adjusting the three-dimensional image captured and projecting the image onto the surface of a mold. During the capture of the image, a

two-dimensional copy is provided and adjusted accordingly. Using the corrected image, the image is displayed onto a mold that is milled and routed for accurately corresponding to the image, using a program and automated machines. The mold can then be used to mold any moldable material into the three-dimensional image formed. See col. 2, lines 55-68', col. 3, lines 1-40. Hogan provides a complementary shape.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide and modify an electronic image, and form a mold using that image for reproducing molded three-dimensional articles having the image shape.

Note that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior ad structure is capable of performing the intended use, then it meets the claim.

To co-mold the articles produced using the mold, or to embed structures Within the articles as claimed, is deemed conventional in the molding art and would have been obvious to so include as such is well within the choice of the practitioner for forming equivalent alternative structures.

As to the new limitations which require complementary shapes and a multiplicity of pieces ("individual ones of the components of the electrical assembly."), Plummer provides substantially complementary shapes and a multiplicity of pieces formed simultaneously. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Plummer into that of Hogan in order to increase manufacturing efficiency by simultaneously molding multiple pieces.

Allowable Subject Matter

6. Claims 11-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

7. Applicant's arguments filed 22 June 2006 have been fully considered but they are not persuasive. The arguments appear to be on the following grounds:

a) A lead frame is different than a circuit board. Substituting a circuit board for a lead frame is not at all practical, and fails to read on the claimed invention.

b) Palmer does not provide a truly or substantially complementary shaped recess for the chip, let alone for individual and multiple components.

c) Hagan teaches molding dimensional reproductions of a three-dimensional object, and Applicant's invention is opposite in molding process.

d) Claim 9 recites to enclose and protect an electrical assembly.

8. These arguments are not persuasive for the following reasons:

a) The Examiner asserts that no functional difference is apparent between the claimed components. Circuits are comprised of conductive wires, as are lead frames. The Examiner asserts firstly that lead frames read on circuit boards, and additionally that the same

encapsulation technique would be found applicable by the ordinary artisan to other similar components.

b) Applicant's remarks do not appear to consider the similarity in contour shown in Fig. 9, which is asserted to be a complementary shape. An additional reference to Plummer shows that multiple fabrication is desirable, and it is asserted that the ordinary artisan would find the desirable benefits of simultaneous fabrication of multiple parts prima facie obvious.

c and d) The Applicant's remarks do not appear to consider the mold taught by Hogan at 3:25-30. Hogan teaches both negative and positive contours, and thus it is unclear how the technique of Hogan is "opposite" in molding process. Additionally, the combination with Plummer fulfills the new claim limitations as it is drawn to a multiplicity of parts, which are also electrical lead frames, and are also substantially the same as circuit boards.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Daniels whose telephone number is (571) 272-2450. The examiner can normally be reached on Monday - Friday, 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MJD
8/28/06

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